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Controlling Cane Cactus with 2,4-DP

by

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Cane cactus, Opuntia spinosior (Engelm. & Bigel.) Tourney, is an aggressive cholla cactus in the Southwest, particularly at lower elevations. Terminal joints that fall to the ground take root readily when surface moisture conditions are adequate. Impenetrable thickets often encroach on valuable grazing land and compete for moisture and nutrients with more useful vegetative types.

Mechanical control of the cane cactus is difficult because of its unusual sprouting characteristic. As late as 1959 no herbicides were available to control cholla cacti economically on extensive areas.[2]

In 1961 an area was sprayed with 2,4,5-T acetic acid in a 25-percent solution; it showed only a 50-percent kill 1 year after treatment.[3]

When a new herbicide, 2,4-DP (R-H Brush Rhap LV-4-DP),[4] was applied on cane cactus in 1961 and 1962, a 95- to 100-percent kill resulted. Within 2 days after spraying, plants showed discoloration; by the fourth day, they wilted and drooped; at the end of 2 weeks, no signs of life could be detected. Reexamination in November 1963 of the areas sprayed in 1961 and in 1962 revealed that no resprouting had occurred (fig. 1).

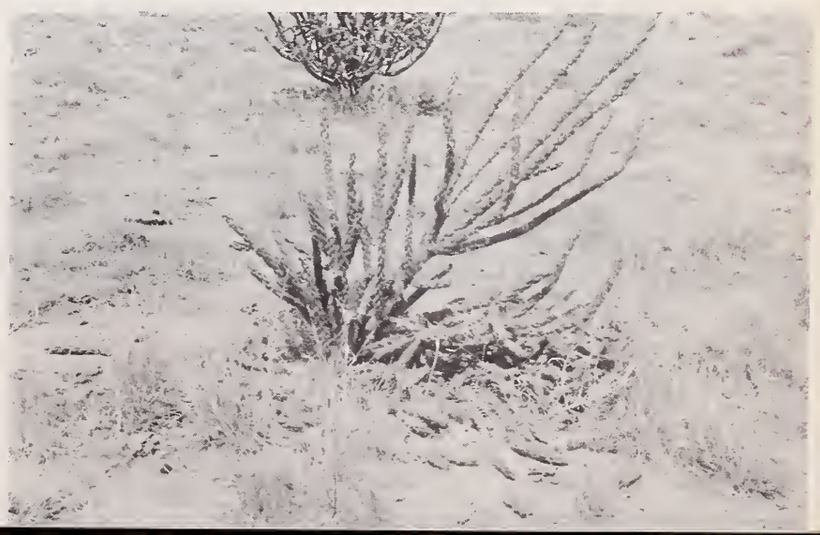
Figure 1.--Cane cactus plant sprayed with 2,4-DP. Six days after spraying, some of the smaller terminal joints had fallen to the ground.

Methods of Application

Three types of sprayers were used, all of which gave satisfactory results. Varying the droplet size from a fine mist to large drops apparently had no effect on the percent kill; the important factor was to cover the plant completely with the herbicide solution.

In the first trial in 1961, a garden-type hand sprayer with a 1 1/2-gallon tank capacity was used. This low-pressure, compressed-air sprayer with built-in pump produced fairly large droplets.

A power mist blower, which blows out a large volume of air at high speed, was also used. Atomizing nozzles inject a small amount of liquid solution into the airstream; the spray was easily adjusted from a fog or mist to large droplets. This lightweight, rugged sprayer with a 2.77-gallon tank capacity, was easily backpacked.



In 1962, 400 acres were sprayed by a power sprayer on a two-wheeled trailer pulled with a pickup truck. A one-cylinder air-cooled engine powered the air compressor and an agitator inside the spray tank. Attached to the compressor were two high-pressure hoses with spray guns on which the spray was easily adjusted from a mist to large droplets. Areas inaccessible by truck were sprayed with a portable mist blower.

Date of Application

In 1961, a spraying was done at two different times: one in May as soon as new growth began, another 30 days later. The 1962 spraying was done when new growth first became visible (May).

Percentage kill was the same, but the plants sprayed when the cacti were just beginning new growth responded faster than those sprayed 30 days later.

Rate of Application

Several mixtures were used, including the following combinations, by part:

2,4-DP	Diesel Oil	Water
1	8	16
1	1	22
1	0	23
1/3	1	22-2/3
1	3	20

In the 1961 trials, a mixture of 1 part 2,4-DP, 8 parts diesel oil, and 16 parts water was used. Most of the 400-acre spraying job in 1962 was done with 1 part herbicide, 3 parts diesel oil, and 20 parts water.

The number of gallons per acre varied with the density and size of the cacti, but 1 gallon was usually sufficient to cover 14 to 20 plants.

Variations in the percentage of water used did not affect the results. Reductions in the amount of diesel oil produced no change in plant reaction or percent kill, but eliminating it completely doubled the time of plant reaction. Reaction time also was doubled when the 2,4-DP was reduced to one-third part, although this did not affect the percent kill.

Results

Total kill over the 400-acre sprayed area varied from 95 to 100 percent, depending on the topography. A kill of less than 100 percent resulted only in inaccessible areas where some plants probably received insufficient coverage or were not sprayed at all.

Conclusions

In the spring of 1961 and 1962, cane cactus plants were sprayed with 2,4-DP with different type sprayers. Conclusions were that:

1. The herbicide, 2,4-DP, is equally effective whether it is applied as a mist or as a spray of large droplets.
2. The plant must be completely covered with the herbicide solution to obtain a 100-percent kill.
3. Plants die sooner when the herbicide is applied to plants just beginning growth than when applied later.
4. The formula used with this herbicide may be varied without affecting the percentage kill.
5. No resprouting occurred several months after spraying.

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[2] *U. S. Range Seeding Equipment Committee. Cholla cacti (Opuntia spp.). In Handbook: Chemical control of range weeds. U. S. Dept. Agr., U. S. Dept. Int. p. W-3. Rev. 1959.*

[3] *New Mexico State University. On-farm and on-ranch demonstrations, 1962. Ninth Ann. Rpt., Dept. Agr. Serv. and Ext. Serv. 39 pp., illus. 1962.*

[4] *Iso-octyl (2 ethyl hexyl) ester of 2,4-dichlorophenoxy-propionic acid. Use of trade name does not constitute endorsement.*

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